

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. – 20. (Canceled)

21. (Currently Amended) A method of forming a non-linear tunnel through a bone structure, comprising:

positioning at least a portion of a flexible single shaft cutting tool through a flexible guide mechanism;

positioning the flexible single shaft cutting tool adjacent to the bone structure at a first bone location;

guiding the flexible single shaft cutting tool with the flexible guide mechanism from the first bone location to a second bone location; and

cutting a non-linear path with the flexible single shaft cutting tool through the bone structure from the first bone location to the second bone location so as to cause the flexible single shaft cutting tool to enter the bone structure at the first bone location and exit the bone structure at the second bone location;

associating a suture engaging hook with the flexible single shaft cutting tool;

engaging a suture with the suture engaging hook at the second bone location;

and

pulling the suture through the non-linear path from the second bone location to the first bone location to secure the suture to a selected tissue near to the first and second bone location after the non-linear path has been formed.

22. (Original) The method of Claim 21 further comprising forming the non-linear path in the bone substantially percutaneously.

23. (Original) The method of Claim 21 wherein the first location and second location are co-planar.

24. (Canceled)

25. (Previously Presented) The method of Claim 21 wherein guiding the flexible single shaft cutting tool with the flexible guide mechanism further comprises: directing the flexible single shaft cutting tool in the non-linear path with a strand.

26. (Previously Presented) The method of Claim 21 wherein guiding the flexible single shaft cutting tool with the flexible guide mechanism further comprises: directing the flexible single shaft cutting tool in the non-linear path with a rod formed of a memory-shape alloy.

27. (Original) The method of Claim 21 further comprising:
viewing the cutting of the non-linear path with an arthroscope.

28. (Currently Amended) A method of forming a non-linear tunnel through a bone structure, comprising:

interconnecting a flexible drill shaft and a drill head;

forming a small incision in a tissue near the bone structure;

passing the drill head with the flexible drill shaft percutaneously through the small incision;

drilling into the bone structure with the drill head at an entering position;

guiding the drill head with the flexible drill shaft with a guide mechanism along a selected non-linear cutting path within the bone structure by:

positioning at least a portion of the flexible drill shaft through a flexible rod;

and

connecting a flexible member to a portion of the flexible drill shaft;

sliding a handle to tension the flexible member to assist in directing the flexible drill shaft along the selected non-linear path; and

forming the selected non-linear cutting path with the drill head between the entering position into the bone structure and an exiting position out of the bone structure that is spaced a distance from the entering position in the bone structure.

29. (Previously Presented) The method of Claim 28 further comprising:

providing a suture near the exiting position;

moving the drill head and the flexible drill shaft;

engaging the suture with a suture mechanism near the drill head; and

pulling the suture from the exiting position to the entering position with the suture mechanism.

30. (Currently Amended) The method of Claim 28 wherein the guide mechanism further includes:

[[a]] the flexible rod at least partially enclosing at least a portion of the flexible drill shaft and having a proximal end and a distal end, the flexible drill shaft coupled to the flexible rod at the proximal end; and

[[a]] the flexible member interconnected with a distal end of the flexible drill shaft.

31. (Canceled)

32. (Currently Amended) The method of Claim [[31]] 28, further comprising:

selecting a first path that is linear or non-linear of the drill head;

selecting a second path that is linear or non-linear of the drill head;

wherein sliding [[a]] the handle to tension the flexible member moves the flexible member to engage the drill head or the flexible drill shaft to move the drill head from the selected first path to the selected second path during forming the selected non-linear cutting path.

33. (Previously Presented) The method of Claim 28, wherein guiding the drill head includes:

passing at least one of the flexible drill shaft, the drill head, or combinations thereof through a flexible rod, moving the flexible rod to engage and direct at least one of the flexible drill shaft, the drill head, or combinations thereof;

wherein forming the selected non-linear cutting path includes directing at least one of the flexible drill shaft, the drill head, or combinations along a first path and directing at least one of the flexible drill shaft, the drill head, or combinations along a second path.

34. (Previously Presented) The method of Claim 33 wherein forming the selected non-linear path includes forming the first path linearly and the second path non-linearly while forming the selected non-linear cutting path.

35. (Previously Presented) The method of Claim 30 wherein the flexible rod is made from a shape memory alloy.

36. (Previously Presented) The method of Claim 28, wherein forming the small incision near the bone structure includes forming the small incision near a humeral head of a humerus.

37. (Previously Presented) The method of Claim 36, further comprising:
engaging a select tissue with the suture;
moving a suture through the tunnel formed in the humerus after the tunnel is
formed;
tying the suture to the humerus; and
compressing a tissue to the humerus.

38. (Canceled)

39. (Currently Amended) A method of forming a non-linear tunnel through a
bone structure, comprising:
identifying the bone structure as at least one of a humerus, humeral head,
glenoid, or combinations thereof;
forming an incision in tissue relative to the identified bone structure;
drilling into the identified bone structure with a drill head associated with a flexible
drill shaft;
guiding the drill head and flexible drill shaft with a flexible guide mechanism
~~through~~ through an entry position and through the identified bone structure in a first
direction, by:

engaging a flexible rod with a housing with the flexible drill shaft;
coupling the flexible drill shaft to the flexible rod at a proximal end;
engaging a handle with a distal end of the flexible rod and the housing;

manipulating the handle to direct the flexible drill shaft along a non-predetermined path;

forming a tunnel with the drill head along the non-predetermined path a first path and a second path;

exiting the identified bone structure at an exit position with the drill head;

moving a suture engaging member near the drill head though the formed tunnel;

pulling a suture through the formed tunnel in a second direction to pull the suture from the exit position to the entry position; and

engaging the identified bone structure with the suture.

40. (Currently Amended) The method of Claim 39, wherein the non-predetermined path includes a first path and a second path, in which the first path is formed along at least one of a curved path and straight path and the second path is formed along at least one of a straight path and a curved path;

wherein the first path and the second path are formed by changing a direction of the drill head.

41. (Previously Presented) The method of Claim 39, further comprising:

passing the suture through a soft-tissue near the humeral head; and

compressing the soft-tissue to the identified bone structure with the suture.

42. (Previously Presented) The method of Claim 39, further comprising:

positioning an arthroscope near at least one of the entry position, the exit position, or combinations thereof.

43. (Cancelled)

44. (Currently Amended) The method of Claim [[43]] 39, further comprising:

interconnecting a flexible member to the flexible drill shaft; and
sliding the handle to cause tension in the flexible member to direct the flexible drill shaft along the first and second path while forming the tunnel;
wherein guiding the drill head includes changing a direction of the drill head after beginning forming the tunnel.

45. (Currently Amended) The method of Claim [[43]] 39, further comprising:

coupling a flexible member to the flexible drill shaft;
extending the flexible member through the housing; and
manipulating the flexible member manually to direct the flexible drill shaft along the first and second path.

46. (Previously Presented) The method of Claim 39, wherein the entry position is near at least one of a lateral side of the humerus, a superior side of the humeral head, or combinations thereof; and

the exit position is at least one of the other of the lateral side of the humerus, the superior side of the humeral head, or combinations thereof.

47. (Previously Presented) The method of Claim 46, further comprising:
passing the suture through a soft-tissue near the humeral head; and
compressing the soft-tissue to the superior side of the humeral head with the suture.

48. (Previously Presented) The method of Claim 21, wherein cutting the non-linear path further comprises:

extending a flexible single shaft cutting tool having a continuous drill shaft through the bone structure from the first bone location to the second bone location.

49. (Previously Presented) The method of Claim 21, further comprising:
flexing the single shaft cutting tool from a first configuration to a second configuration.

50. (Currently Amended) The method of Claim [[31]] 28, further comprising:

flexing the flexible member from a first configuration to a second configuration with the handle.

51. (Previously Presented) The method of Claim 39, wherein pulling the suture through the formed tunnel further comprises:

pulling the suture through the formed tunnel in the second direction after the tunnel is formed.

52. (Previously Presented) The method of Claim 39, wherein the second direction is opposite the first direction.

53. (New) The method of Claim 21, wherein the non-linear path is defined by more than a single radius.

54. (New) The method of Claim 21, wherein the non-linear path is a non-predetermined path.